

Bremen, 12 August 2005  
Our Ref.: IA 814-02WO STK/mie  
Direct Dial: 0421/36 35 694  
Applicant: INTERNATIONAL UNIVERSITY BREMEN  
Serial Number: PCT/EP2004/011840

New Claims (marked-up copy)

1. A communications network comprising a plurality of transmitting stations and receiving stations for transmitting and receiving signals, said transmitting stations being adapted for transmitting a data signal as a series of data packets, wherein a data packet is scheduled to be transmitted by use of an available transmission resource, and said receiving stations being adapted for transmitting a reservation indicator for reception by transmitting stations, wherein a said reservation indicator transmitted by a receiving station carries
  - a first reservation indicator value to indicate that a data transmission resource has been reserved by said receiving station for reception of the next data packet of a data signal from a transmitting station transmitting said data signal or
  - a second reservation indicator value to indicate that a data transmission resource has not been reserved by said receiving station for reception of the next data packet from said transmitting station or that the last data packet has not been received with acceptable interference from said transmitting station, and wherein transmitting stations receiving a reservation indicator carrying a first reservation indicator value transmitted from a receiving station to which no data signal has been transmitted by them, which is checked by use of the received signal strength of the reservation indicator or by use of the path gain, will not transmit a data packet by use of the reserved transmission resource.

2. A communications network as claimed in claim 1,  
wherein each data packet is transmitted in a fixed data time slot within a time frame,  
wherein indicator time slots are assigned to said data time slots, and  
wherein a reservation indicator transmitted in an indicator time slot indicates if the associated data time slot has been reserved in the subsequent time frame for transmission of the next data packet by said transmitting station.

3. A communications network as claimed in claim 1,  
wherein said data packets are transmitted in a fixed data sub-carrier,  
wherein an indicator sub-carrier is assigned to said data sub-carrier, and  
wherein a reservation indicator transmitted in an indicator sub-carrier indicates if the associated data sub-carrier is reserved for transmission of the next data packet by said transmitting station.

4. A communications network as claimed in anyone of the preceding claims,  
wherein said first reservation indicator value is represented by transmitting a reservation indicator and wherein said second reservation indicator value is represented by transmitting no reservation indicator.

5. A communications network as claimed in anyone of the preceding claims,  
wherein a data transmission resource for the transmission of data packets of a signal is selected based on said reservation indicator.

6. A communications network as claimed in anyone of the preceding claims,  
wherein a transmitting station stops the transmission of data packets in the reserved data transmission resource upon receipt of a reservation indicator from the receiving station to which the transmission station transmits data packets, if said received reservation indicator carries a reservation indication value indicating that a data transmission resource has not been reserved by said receiving station for reception of the next data packet from said transmitting station and/or that the last data packet has not been received with acceptable interference from said transmitting station.

7. A communications network as claimed in anyone of the preceding claims, wherein a transmitting station transmits a continue indicator along with a data packet indicating if at least one further data packet shall be transmitted to the receiving station in the same data transmission resource.

8. A communications network as claimed in claim 7, wherein the receiving station, to which the transmitting station transmits a signal, transmits a reservation indicator value indicating that the data transmission resource has been reserved for reception of at least one further data packet if said continue indicator indicates that at least one further data packet shall be transmitted in the same data transmission resource.

9. A communications network as claimed in anyone of the preceding claims, wherein the transmission of a signal from a transmitting station to a receiving station is controlled based on received reservation indicators such that the data packets of the signal are transmitted in data transmission resources that are not reserved by said receiving station or other receiving stations for use by other transmitting stations.

10. A communications network as claimed in anyone of the preceding claims, wherein said data transmission resource is a data time slot, a data sub-carrier, a data carrier and/or a data code.

11. A communications network as claimed in anyone of the preceding claims, wherein said network is a cellular communications network, an ad-hoc communications network or a hybrid cellular/ad-hoc communications network.

12. A communications network as claimed in anyone of the preceding claims, wherein said transmitting stations are adapted for checking if a received reservation indicator is a valid reservation indicator.

13. A communications network as claimed in claim 12, wherein said transmitting stations are adapted for checking the validity of a received reservation indicator by determining the actual path gain for said received reservation indicator and by comparing it to the expected path gain.

14. A communications network as claimed in claim 13, wherein said transmitting stations are adapted for judging a received reservation indicator as invalid if the actual path gain is substantially different from the expected path gain, in particular if the percentage error between the actual path gain and the expected path gain is larger than a predetermined threshold, in particular larger than 5%.

15. A method of communicating in a communications network comprising a plurality of transmitting stations and receiving stations for transmitting and receiving signals comprising the steps of:

transmitting a data signal as a series of data packets by said transmitting stations, wherein a data packet is scheduled to be transmitted by use of an available transmission resource, and

transmitting a reservation indicator for reception by transmitting stations by said receiving stations,

wherein said reservation indicator carries

- a first reservation indicator value to indicate that a data transmission resource has been reserved by a receiving station for reception of the next data packet of a data signal from a transmitting station transmitting said data signal or

- a second reservation indicator value to indicate that a data transmission resource has not been reserved by said receiving station for reception of the next data packet from said transmitting station or that the last data packet has not been received with acceptable interference from said transmitting station, and

wherein transmitting stations receiving a reservation indicator carrying a first reservation indicator value transmitted from a receiving station to which no data signal has been transmitted by them, which is checked by use of the received signal strength of the reservation indicator or by use of the path gain, will not transmit a data packet by use of the reserved transmission resource.

16. A receiving station for use in a communications network comprising a plurality of transmitting stations and receiving stations for transmitting and receiving signals, comprising:

receiving means for receiving a series of data packets of a data signal from a transmitting station, wherein a data packet is scheduled to be transmitted by use of an available transmission resource, and

transmitting means for transmitting a reservation indicator for reception by transmitting stations,

wherein said reservation indicator carries

- a first reservation indicator value to indicate that a data transmission resource has been reserved by said receiving station for reception of the next data packet of a data signal from a transmitting station transmitting said data signal or

- a second reservation indicator value to indicate that a data transmission resource has not been reserved by said receiving station for reception of the next data packet from said transmitting station or that the last data packet has not been received with acceptable interference from said transmitting station, and wherein transmitting stations receiving a reservation indicator carrying a first reservation indicator value transmitted from said receiving station to which no data signal has been transmitted by them, which is checked by use of the received signal strength of the reservation indicator or by use of the path gain, will not transmit a data packet by use of the reserved transmission resource.

17. A transmitting station for use in a communications network comprising a plurality of transmitting stations and receiving stations for transmitting and receiving signals, comprising:

transmitting means for transmitting a series of data packets of a data signal to a receiving station, wherein a data packet is scheduled to be transmitted by use of an available transmission resource,

receiving means for receiving a reservation indicator transmitted from said receiving station,

wherein said reservation indicator carries

- a first reservation indicator value to indicate that a data transmission resource has been reserved by said receiving station for reception of the next data packet of a data signal from said transmitting station transmitting said data signal or

- a second reservation indicator value to indicate that a data transmission resource has not been reserved by said receiving station for reception of the next data packet from said transmitting station or that the last data packet has not been received with acceptable interference from said transmitting station, and a control means for controlling the transmitting means such that upon receipt of a reservation indicator carrying a first reservation indicator value transmitted from a

receiving station to which no data signal has been transmitted by said transmitting station, which is checked by use of the received signal strength of the reservation indicator or by use of the path gain, a data packet will not be transmitted by use of the reserved transmission resource.